

## ABSTRACT

### **METHOD AND APPARATUS FOR CONTROLLED CONTRACTION OF COLLAGEN TISSUE**

5 A method and apparatus for tightening a surface of a skin with an  
underlying collagen containing tissue applies radiant energy through the skin  
to underlying collagen tissue without substantially modifying melanocytes  
and other epithelial cells in the epidermis. A porous membrane is adapted to  
receive an electrolytic solution and become inflated to substantially conform  
a contacting exterior surface of the membrane to a skin layer. The  
10 membrane includes a cooling lumen for receiving cooling fluid. One or more  
thermal electrodes positioned in the membrane and transfers thermal energy  
to the electrolytic solution. The electrolytic solution and cooling fluid  
creates a reverse thermal gradient from the skin surface to the underlying  
collagen tissue. A thermal power source is coupled to the thermal  
electrodes, and a source of electrolytic solution is coupled to the membrane.